

Enseco

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 29565

CLIENT ID: SH734036-03-02 - Date Analyzed: 6/8/87 Column: DB-5

CAL ID: 29565-3

Weight: 10.38G

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total) (2378)	0.29 ND	- 0.046
penta	ND	0.057
hexa	ND	0.037
hepta	ND	0.10
octa	ND	0.075

* Recovery 13C-2378-TCDF = 32%

ND = Not Detected

** Chemical Interference

PREPARED BY: DJ

APPROVED BY: BSM

DATE: 6/18/87

6 Ensl

ENSECO-CAL LAB
QUALITY CONTROL SUMMARY

CASE NO: 29565

CLIENT ID: SH734036-03-02 Native Spike

CAL ID: 29565-3NS

FURANS	ng/g Found in Sample	ng/g Spiked	ng/g Found in NS Sample	NS & Recovery
2,3,7,8-TCDF	ND	0.97	1.09	113%
penta (12378)	ND	0.97	0.88	91%
hexa (123478)	ND	0.97	0.89	92%
hepta (1234678)	ND	0.97	0.90	93%
octa (total)	ND	4.8	7.4	153%

PREPARED BY: of

APPROVED BY: BSJN

DATE: 6/17/87

ENSECO-CAL LAB
QUALITY CONTROL SUMMARY

CASE NO: 29565

CLIENT ID: SH734036-03-02 Native Spike Duplicate
CAL ID: 29565-3NSD

FURANS	ng/g Found In Sample	ng/g Spiked	ng/g Found in NS Sample	NS % Recovery
2,3,7,8-TCDF	ND	0.96	0.78	82%
penta (12378)	ND	0.96	0.76	79%
hexa (123478)	ND	0.96	0.63	66%
hepta (1234678)	ND	0.96	0.60	63%
octa (total)	ND	4.8	56.0	112%

PREPARED BY: of

APPROVED BY: BW

DATE: 6/17/87

Enseco

ENSECO-CAL LAB

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO. 29565

CLIENT ID: Method Blank Date Analyzed: 6/8/87 Column: DB-5

CAL ID: 29565-MB

Weight: 10.0G

	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
FURANS	ND	0.0040
tetra (total)	ND	0.022
penta	ND	0.0086
hexa	ND	0.011
hepta	ND	0.024
octa	ND	

Recovery 13C-2378-TCDF = 74%

ND = Not Detected

PREPARED BY: gfAPPROVED BY: bsmDATE: 6/17/87

ENSECO INC.

Sample Number

SIH734C36-02-03

Department of
Natural ConservationOrganics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration Low Medium High (Circle One)
 Date Extracted/Prepared 6-10-87
 Date Analyzed 6-18-87
 Conc/Dil Factor: 9.5
 Percent Moisture (Decanted) 18

GPC Cleanup Yes NoSeparatory Funnel Extraction YesContinuous Liquid - Liquid Extraction Yes

CAS Number		ug/l or ug/Kg (Circle One)
106-95-2	Pheno	3700.0
111-44-4	bis-2-Chloroethyl Ether	3700.0
95-57-8	2-Chloropheno	3700.0
541-73-1	1,3-Dichlorobenzene	3700.0
106-46-7	1,4-Dichlorobenzene	3700.0
100-51-6	Benzyl Alcohol	3700.0
95-50-1	1,2-Dichlorobenzene	3700.0
95-46-7	2-Methylphenol	3700.0
39535-32-9	bis(2-chloroisopropoxy)Ether	3700.0
106-44-5	4-Methyldiphenol	3700.0
621-64-7	N-Nitroso-D-n Propylamine	3700.0
67-72-1	Hexachlorobutane	3700.0
98-95-3	Nitrobenzene	3700.0
78-59-1	Isophorone	3700.0
88-75-5	2-Nitrophenol	3700.0
105-67-9	2,4-Dimethylphenol	3700.0
65-85-0	Benzoic Acid	1400.0
111-91-1	bis-2-Chloroethoxy)Methane	3700.0
120-83-2	2,4-Dichlorophenol	3700.0
120-82-1	1,2,4-Trichlorobenzene	3700.0
91-20-3	Acenaphthene	2900.0
106-47-8	4-Chloraniline	2900.0
87-65-3	Hexachlorobutadiene	3700.0
59-50-7	4-Chloro-3-Methylphenol	3700.0
81-57-6	2-Methylnaphthalene	3700.0
77-47-4	Hexachlorocyclopentadiene	3700.0
88-06-2	2,4,6-Trichlorophenol	3700.0
95-95-4	2,4,5-Trichlorophenol	1400.0
91-58-7	2-Chloronaphthalene	3700.0
88-74-4	2-Nitroaniline	1400.0
131-11-3	Dimethyl Phthalate	3700.0
208-96-8	Acenaphthylene	3700.0
99-09-2	3-Nitroaniline	1400.0

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	600.0
51-28-5	4-Dinitrophenol	3700.0
100-02-7	4-Nitrophenol	3700.0
132-64-9	Dibenzofuran	570.0
121-14-2	2,4-Dinitrotoluene	3700.0
606-20-2	2,6-Dinitrotoluene	3700.0
84-66-2	Diethylphthalate	3700.0
7005-72-3	4-Chlorophenyl-phenylethane	3700.0
96-73-7	Fluorene	1100.0
100-01-6	Nitroaniline	3700.0
534-52-1	6-Dinitro-2-Methylphenol	3700.0
85-30-6	N-Nitrosodiphenylamine (1)	3700.0
101-55-3	4-Bromophenyl-phenylethane	3700.0
118-74-1	Hexachlorobenzene	3700.0
97-86-5	Pentachloropheno	1400.0
85-01-8	Phenanthrene	270.0
120-42-7	Anthracene	170.0
84-74-2	Di-n-Butylphthalate	3700.0
706-42-0	Fluoranthene	450.0
129-00-0	Pyrene	3800.0
85-58-7	Butylbenzylphthalate	3700.0
91-94-1	2,3-Dichlorobenzidine	700.0
56-55-3	Benzal Anthracene	2200.0
117-81-7	bis(2-Ethylhexyl)Phthalate	3100.0
218-01-9	Chrysene	2100.0
117-84-0	Di-n-Octyl Phthalate	3700.0
205-99-2	Benz(b)Fluoranthene	2600.0
207-08-9	Benz(d)Fluoranthene	2600.0
50-32-8	Benz(a)Pyrene	2100.0
193-39-5	Indeno[1,2,3-cd]Pyrene	1100.0
53-70-3	Dibenz(a,h)Anthracene	470.0
191-24-2	Benz(a)Perylene	1200.0

(1)-Cannot be separated from diphenylamine

SH7310360203

NYS VCC

Organics Analysis Data Sheet
(Page 3)

Concentration Low Medium (Circle One)
 Date Extracted /Prepared 6-10-87
 Date Analyzed 6-26-87 7-29-87
 Conc/Oil Factor 10
 Percent Moisture (decanted) 18 pH = 7

GPC Cleanup Yes NoSeparatory Funnel Extraction YesContinuous Liquid - Liquid Extraction Yes

CAS Number		ug/l or ug/kg (Circle One)
319-84-6	Aldrin-B-H-C	80U
319-85-7	Beta-B-H-C	80U
319-86-8	Delta-B-H-C	80UL
56-29-9	Gamma-B-H-C (Lindane)	80U
76-44-8	Heptachlor	80U
309-00-2	Alpha	80U
1024-57-3	Methylchloro EDDOBE	80UL
959-98-8	Endosulfan I	80U
60-57-1	Dieldrin	160UL
72-55-9	4,4'-DDE	160U
72-20-6	Endrin	160UL
32213-65-9	Endosulfan II	160UL
72-54-8	4,4'-DDD	160UL
1000-07-8	Endosulfan Sulfate	160U
50-29-3	4,4'-DDT	160U
71-43-5	Methoxychlor	80UL
53494-70-5	Endrin Ketone	160U
57-74-9	Chlordane	800U
8001-35-2	Sophorrene	1600U
12674-11-2	Aroclor-1016	800UL
11104-25-2	Aroclor-1221	80U
11141-16-5	Aroclor-1232	800U
53469-21-8	Aroclor-1242	11,000
12672-29-6	Aroclor-1248	800U
11097-69-1	Aroclor-1254	160UL
11096-82-5	Aroclor-1260	80UL

 V_1 = Volume of extract injected (ul) V_3 = Volume of water extracted (ml) W_3 = Weight of sample extracted (g) V_1 = Volume of total extract (ul) V_0 = NTor W_3

24.5

20,000

2.0

Easco Ecco Laboratory (Part 5a)
EAN'S SETI

Sample Number

34734634-62-63

Organics Analysis Data Sheet (Page 4)

Tentatively Identified Compounds

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180

Name ENSECO INC.

New York Department of Environmental Conservation

Sample Number:

SH 734C 26-12 c 1

Organics Analysis Data Sheet
(Page 2)

Concentration Low Medium (Circle One)

Date Extracted / Prepared 6-10-87

Date Analyzed 6-18-87

Conc/Dil Factor: 9.5

Percent Moisture (Decanized) 18

GPC Cleanup Yes NoSeparatory Funnel Extraction YesContinuous Liquid - Liquid Extraction Yes

CAS Number		ug/l or ug/Kg (Circle One)
106-95-2	Phenoxy	3836.4
111-44-2	bis(2-Chloroethyl)Ethe	3801.7
95-57-0	2-Chlorophenol	3801.4
541-73-1	1,3-Dichlorobenzene	3801.0
106-46-7	1,4-Dichlorobenzene	3801.4
100-51-6	Benzyl Alcohol	3801.4
95-50-1	1,2-Dichlorobenzene	3801.4
95-46-7	2-Methoxyphenol	3801.0
39636-32-9	bis(2-chloroethyl)ether	3801.4
106-44-5	4-Methoxyacet-	3801.4
621-68-7	N-Nitroso-Di-n-Propylamine	3801.4
67-72-1	Hexachlorobutadiene	3801.4
98-95-3	Nitrobenzene	3801.4
78-55-1	Isochlorone	3801.4
88-75-5	2-Nitrophenol	3801.4
105-67-9	2,4-Dimethoxyphenol	3801.4
65-85-0	Benzoin Acid	3801.4
111-91-1	bis(2-Chloroethyl)Methane	3801.4
120-83-2	2,4-Dichlorophenol	3801.4
120-82-1	1,2,4-Trichlorobenzene	3801.4
91-20-3	Acetone	3801.4
106-47-8	4-Chloroaniline	3801.4
87-68-3	Hexachlorobutadiene	3801.4
59-50-7	4-Chloro-3-Methoxyphenol	3801.4
91-57-6	2-Methoxyphthalene	3801.4
77-47-4	Hexachlorocyclohexadiene	3801.4
88-06-2	2,4,6-Trichlorophenol	3801.4
85-95-4	2,4,5-Trichlorophenol	3801.4
91-58-7	2-Chloronaphthalene	3801.4
88-74-4	2-Nitroaniline	3801.4
131-11-3	Dimethyl Phthalate	3801.4
208-96-8	Acenaphthylene	3801.4
99-09-2	3-Nitroaniline	3801.4

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Aceanaphthylene	3801.4
51-28-5	2,4-Dimethylphenol	3801.4
100-02-7	4-Nitrophenol	3801.4
132-66-9	Dibenzofuran	3801.4
121-14-2	2,4-Dinitrophenol	3801.4
606-20-2	2,6-Dinitrotoluene	3801.4
84-66-2	Diethylphthalate	3801.4
7005-72-3	4-Chlorophenyl-phenoxyethane	3801.4
95-73-7	Fluorene	3801.4
100-01-6	4-Nitroaniline	3801.4
634-52-1	4,6-Dinitro-2-Methoxyphenol	3801.4
85-30-6	N-Nitrosodimethylamine (1)	3801.4
101-55-3	4-Bromophenyl-phenylethane	3801.4
118-74-1	Hexachlorobenzene	3801.4
87-86-5	Pentachlorobenzene	3801.4
85-01-8	Phenanthrene	3801.4
120-12-7	Anthracene	3801.4
84-74-2	D-n-Butylphthalate	3801.4
205-42-0	Fluoranthene	3801.4
129-00-0	Pyrene	3801.4
25-68-7	2-Ethylphthalate	3801.4
51-84-1	3,3-Dichlorobenzidine	3801.4
56-55-3	Benz(a)Anthracene	3801.4
117-81-7	bis(2-Ethylhexyl)Phthalate	3801.4
218-01-9	Chrysene	3801.4
117-84-0	D-n-Octyl Phthalate	3801.4
205-99-2	Benz(a)Fluoranthene	3801.4
207-08-9	Benz(a)Fluoranthene	3801.4
50-32-8	Benz(a)Pyrene	3801.4
193-39-5	Indeno[1,2,3-CD]Pyrene	3801.4
53-70-3	Dibenz(a,h)Anthracene	3801.4
191-24-2	Benz(a) n-Perylene	3801.4

(1) Cannot be separated from Diphenylamine

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d = C6Fluorin

Name ERCO/ENSECO
NY DFCSample Number
SH7340360301Organics Analysis Data Sheet
(Page 3)

Concentration Low Medium (Circle One)
 Date Extracted / Prepared 6-10-87
 Date Analyzed 6-26-87
 Cone/Dil Factor 10
 Percent Moisture (decanted) 18 pH = 7

Pesticide / PCBs

GPC Cleanup Yes NoSeparatory Funnel Extraction YesContinuous Liquid - Liquid Extraction Yes

GAS Number		ug /100 ug /Kg (Circle One)
319-84-6	Alpha-BHC	800
319-85-7	Beta-BHC	800
319-86-8	Delta-BHC	800
56-29-9	Gamma-BHC (Lindane)	800
76-44-8	Heptachlor	800
305-00-2	Aldrin	800
1024-57-3	Heptachlor Epoxyde	800
959-98-8	Endosulfan I	1600
50-57-1	Dieldrin	1600
72-55-9	4, 4'-DDE	1600
72-20-5	Endrin	1600
33213-65-9	Endosulfan II	1600
72-54-8	4, 4'-DDD	1600
1031-07-8	Endosulfan Sulfate	1600
50-29-3	4, 4'-DDT	1600
72-43-5	Methoxychlor	8000
53494-70-5	Endrin Ketone	1600
57-74-9	Chlordane	5000
8301-35-2	Torophene	16000
12674-11-2	Aroclor-1016	8000
11104-28-2	Aroclor-1221	8000
11141-16-5	Aroclor-1232	8000
53469-21-9	Aroclor-1242	8000
12672-77-6	Aroclor-1248	8000
11097-69-1	Aroclor-1254	8000
11096-82-5	Aroclor-1260	8000

 V_1 = Volume of extract injected (ul) V_2 = Volume of water extracted (ml) W_3 = Weight of sample extracted (g) V_4 = Volume of total extract (ul) V_5 NAor W_5 25.1 V_1 20,000 V_1 2.0

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Name: Ensero Erco Laboratory
No. NISTC

Sample Number

SH734136-C3-L1

Organics Analysis Data Sheet (Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Unknown	BNA	1297	2161
2.	Unknown	BNA	1352	1766
3.	Unknown	BNA	1293	37011
4.	Unknown	BNA	1443	3455
5.	Unknown	BNA	1496	1666
6.	Unknown	BNA	1543	1666
7.	Unknown steroid ($C_{25}H_{50}$ isomer)	BNA	2032	2760
8.				
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26.				
27.				
28.				
29.				
30.				

REFERENCE 7

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(Part 5a). Pg 12 of 25

New York State
Approved Labors
(318) 448-8791

- - - 7

To: CALOCERINOS & SPINA ENGINEERS
1020 SEVENTH NORTH STREET
LIVERPOOL, NY 13088

Date: Jul 28 1987

Attention: CLARKSON/SALINA

SAMPLE #3411

PAGE 1 OF 2

LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT	: CALOCERINOS & SPINA ENGINEERS	DATE RECEIVED	: 05/25/87
JOB #	: 905.019.02	DATE COLLECTED	: 05/25/87
LOCATION	: SALINA LANDFILL, #3 SW-E	TIME COLLECTED	: 1100
METHOD	: ERAS		

PARAMETER	RESULTS	UNITS
PCB'S IN SEDIMENT AS 1221	621.	mg/kg
PCB'S IN SEDIMENT AS 1222	621.	mg/kg
PCB'S IN SEDIMENT AS 1242/1243	625.	mg/kg
PCP'S IN SEDIMENT AS 1242	74.	mg/kg
PCP'S IN SEDIMENT AS 1224	57.	mg/kg
PCP'S IN SEDIMENT AS 1223	57.0	mg/kg
PCP'S IN SEDIMENT AS 1222	57.0	mg/kg
PCP'S IN SEDIMENT AS 1223	57.0	mg/kg
BENZENE	00.50	mg/kg
1,2 DICHLOROBENZENE	00.50	mg/kg
1,3 DICHLOROBENZENE	00.50	mg/kg
1,4 DICHLOROBENZENE	00.50	mg/kg
ETHYLBENZENE	00.50	mg/kg
TOLUENE	00.50	mg/kg



8964 Butternut Drive, East Syracuse, NY 13067

Approved Laboratory
(318) 446-8786*****
SAMPLE #3411

PAGE 2 OF 2

LABORATORY ANALYSIS REPORT

PARAMETER	RESULTS	UNITS
ortho-XYLENE	(0.50	mg/kg
para-XYLENE	(0.52	mg/kg
meta-XYLENE/CHLOROBENZENE	(0.50	mg/kg
TOTAL SOLIDS	542000.	mg/kg

~~NOTE:~~
 All analyses performed and reported on a mg/kg wet weight basis, except for TOC or PCE's which is expressed in mg/kg dry weight.

~~NOTES:~~
 All sampling and analyses conducted as part of this report are performed in accordance with the analytical, industrial, research methodologies and professional standards. CS will not assume liability for any damages resulting from deficient work other than negligence or carelessness of said work and will not accept any liability as a result of data interpretation by the client.

MECDH - ELAS #10267

APPROVED BY Conrad Teufel Jr. DATE: 7/28/87

recycled paper



(Part No. Pg 14 of 25)

Approved Laboratory
(315) 448-0708

To: CALOCERINOS & SPINA ENGINEERS
1020 SEVENTH NORTH STREET
LIVERPOOL, NY 13088

Date: Jul 28 1987

Attention: CLARKSON/SALINA

***** SAMPLE #3-12 *****

LABORATORY ANALYSIS REPORT**SAMPLE SUMMARY**

CLIENT : CALOCERINOS & SPINA ENGINEERS	DATE RECEIVED : 05/22/87
JOE # : 935.019.00	DATE COLLECTED : 05/22/87
LOCATION : SALINA LANDFILL, #3 SW-2	TIME COLLECTED : 1100
METHOD : IGRAS	

PARAMETER	RESULT	UNITS
ANTIMONY	015.	mg/kg*
ARSENIC	18.02	mg/kg*
BERYLLIUM	0.05	mg/kg*
CALCIUM	3.4	mg/kg*
CHROMIUM-6+	438.	mg/L*
COPPER	415.	mg/kg*
LEAD	62.	mg/kg*
MERCURY	02.02	mg/kg*
NICKEL	110.	mg/kg*
SELENIUM	01.0	mg/kg*
SILVER	01.5	mg/kg*
THALLIUM	012.	mg/kg*
ZINC	160.	mg/kg*
TOTAL SOLIDS	542000.	mg/kg

* NET WEIGHT

warrants that any sampling and analyses conducted as part of this report are performed in accordance with the analytical industries recognized methodologies and professional standards. LS will not assume liability for any damages resulting from deficient work other than reperformance or cost of said work and will not accept any liability as a result of data interpretation by the client.

/S/ECW - ECOB #102E7

APPROVED BY: Conrad J. 101DATE: 7/28/87



New York State
Approved Laboratory
(315) 446-3733

To: CALOCERINOS & SPINA ENGINEERS
1020 SEVENTH NORTH STREET
LIVERPOOL, NY 13088

Date: Jul 28 1987

Attention: CLARKSON/SALINA

***** SAMPLE #3411 *****

LABORATORY ANALYSIS REPORT

SAMPLE SUMMARY

CLIENT	: CALOCERINOS & SPINA ENGINEERS	DATE RECEIVED	: 05/22/87
JCS #	: 985.015.00	DATE COLLECTED	: 05/22/87
LOCATION	: SALINA LANDFILL, #3 SW-2	TIME COLLECTED	: 1100
METHOD	: GRAB		

PCP Extraction Procedure and Analysis as given in "Test Methods for Evaluating Solid Waste-Physical/Chemical Methods". USEPA, 1982, SW-645

Parameter	Maximum Extraction Level	Analyzed Level
Arsenic	5.0 mg/l	(1.0 mg/l)
Boron	100.0 mg/l	(10. mg/l)
Cadmium	1.0 mg/l	(0.5 mg/l)
Chromium-Total	5.0 mg/l	(0.5 mg/l)
Copper	5.0 mg/l	(1.0 mg/l)
Mercury	0.2 mg/l	(0.01 mg/l)
Selenium	1.0 mg/l	(1.0 mg/l)
Silver	5.0 mg/l	(1.0 mg/l)

To determine whether sample is to be considered Hazardous, please compare reported values to maximum allowable levels.

NYSDOH - ELAP #100ET

APPROVED BY: Conrad Steffelh DATE: 7/28/87

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REFERENCE 8

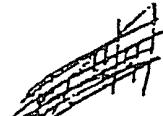
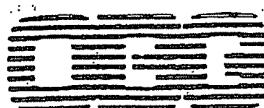
Poth

Onondaga County Health Dept.

CHAIN OF CUSTODY RECORD

SURVEY Salina and Brighton Landfills		SAMPLES: (Signature) Mark E. Van Valkenburg					
STATION NUMBER	STATION LOCATION	DATE	TIME	SAMPLE TYPE Water : <u>Soil</u> Container: Glass	SEQ. NO.	NO. OF CONTAINERS	ANALYSIS REQUIRED
1	Salina Thruway ditch	3/26/86	13:13	✓		1	PCB
2	Salina Thruway ditch	H	13:18	✓		1	PCB
3	Brighton/North slope	3/26/86	14:44	✓		1	PCB
RECEIVED							
APR 4 - 1986							
DEPT. OF ENVIRONMENTAL PROTECTION							
Relinquished by: (Signature) <u>Mark E. Van Valkenburg</u>		Received by: (Signature)		Date/Time 3/26/86			
Relinquished by: (Signature)		Received by: (Signature)		Date/Time			
Relinquished by: (Signature)		Received by: (Signature)		Date/Time			
Relinquished by: (Signature)		Received by: Mobile Laboratory for field analysis: (Signature)		Date/Time			
Inspected by: (Signature)		Date/Time	Received for Laboratory by: <u>Mark E. Van Valkenburg</u>		Date/Time 3/26/86		
Period of Shipment:							

A-65



LABORATORIES, INC.

Laboratory Report

CLIENT: ONONDAGA COUNTY DEPARTMENT OF HEALTH

JOB NO. 2235.0015.17

DESCRIPTION Salina and Brighton Landfills

DATE COLLECTED 3-20-86

DATE RECD. 3-20-86

DATE ANALYZED

Methodology; Federal Register - 40 CFR, Part 135, October 26, 1954

Use **ME / (P&G) unless otherwise noted**

Comments:

CEG Laboratories, Inc.
Box 49421 • 1334 Buckley Rd. • Syracuse, NY 13221 / (315) 457-1494

Author: .

- 1 -

A-66

1-163 3.4.1956

US0253

REFERENCE 9

A-67

1100-1100 - Sorted 1/18/86. Warte

Ley Creek Dredged Material Area

relative to land fill
Salina Town # 734036

Study of Ley Creek
approx. $\frac{1}{4}$ to $\frac{1}{2}$ mile upstream of
General Motors Corporation Salina Town LF area
Fisher Guide Division
Syracuse, New York

July 1989



O'BRIEN & GERE

EXECUTIVE SUMMARY

The Ley Creek Site is situated in the Town of Salina, Onondaga County, New York. Specifically, the project area lies along the south bank of Ley Creek, and occupies an area which extends approximately 5200 ft, situated between the Town of Salina Garage to the west andownline Road to the east.

Previous investigations at the site revealed that polychlorinated biphenyls (PCBs) were present in materials which had been periodically dredged from the creek and deposited on-site. The PCBs were reported to have originated from materials previously used in hydraulic die casting operations at the Inland Fisher Guide (IFG) Facility.

As a result, a soil boring and hydrogeologic investigation has been conducted to characterize the horizontal and vertical extent of the waste materials and ground water quality impacts. In addition, a risk assessment has been prepared to identify potential exposure pathways and receptors.

The completion of these investigations has resulted in the following conclusions:

1. Portions of Ley Creek, including the area adjacent to the site, have been dredged at various times. The dredged materials, containing PCBs, were deposited along the south bank of the creek or used for restoration projects.
2. The on-site geology is characterized by the dredged fill materials at the surface overlying silts, clays, and fine-grained deposits, which are superposed on dense glacial till.

- The dredged materials are comprised of the fine-grained lacustrine and fluvial deposits.
3. Ground water flow across the site is in a northerly direction toward Ley Creek. Ground water flow velocity varies from 0.05 ft/day to 0.11 ft/day during dry and wet weather conditions respectively. The average yearly ground water discharge to Ley Creek from the south side of the site is estimated to be 11,300 gallons/day.
 4. PCB concentrations in the on-site soils ranged from less than detectable to 180 ppm. With the exception of boring B6, soils containing PCB concentrations in excess of 50 mg/kg are limited to an area extending approximately 1,600 ft. west of Townline Road.
 5. Sediment samples collected from the Ley Creek stream bed indicate that detectable concentrations of PCBs are contained within the boundaries of the site. The highest value (8.3 mg/kg) was measured immediately downstream of the IFG Outfall. Upstream and downstream samples collected near the site boundaries did not contain detectable levels of PCBs.
 6. Ground water samples collected from the site, including the upgradient sample, exhibited concentrations of PCBs in excess of the NYS Class GA ground water standard of 0.01 ug/l. The highest concentration of PCBs in the ground water was measured in the central portion of the site, between and including monitoring wells MW8 and MW13. This coincides with the highest PCB concentrations measured in soil boring samples B1 to B11, located in the same general vicinity.

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7. Surface water samples collected at the upstream (SW-3) and furthest downstream (SW-1) areas did not exhibit detectable levels of PCBs. However, a surface water sample collected immediately downgradient of the IFG outfall exhibited a PCB concentration of 1.4 ug/l during the 4/89 wet weather sampling event. Detectable levels of PCBs were not detected at sample locations during the dry weather (10/88) sampling event.
8. Air monitoring samples were collected at various upwind and downwind locations encompassing the site. The results of all samples were less than detectable, with a detection limit of 0.001 mg/m³. The Threshold Limit Value for PCBs is 0.5 mg/m³.
9. The mass transport of PCBs into Ley Creek from the site has been calculated to be 0.15 gm/day, resulting in a projected PCB concentration for the surface water of Ley Creek at 0.0028 ug/l. The calculated PCB concentration of 0.0028 ug/l is below the NYS Class A standard of 0.01 ug/l for human health. Although this calculated PCB concentration exceeds the 0.001 ug/l standard for aquatic life, surface water samples collected downstream did not detect PCBs within Ley Creek.
10. Under the assumed worst-case conditions, it was estimated that adults and children ingesting low-level PCB residues as a result of coming into contact with contaminated soils would incur an incremental lifetime risk of cancer in the range of 7.63×10^{-7} to 1.89×10^{-8} , a range of risks which is

SECTION 1 - INTRODUCTION

1.01 Project Background

Due to flooding problems in the Ley Creek drainage basin, periodic dredging of Ley Creek has been performed by the Onondaga County Department of Drainage and Sanitation (OCDDS) from the early 1970's to 1983. Dredged materials generated by this activity were placed along the south bank of the creek or used for land restoration projects. A hydrogeologic investigation of Ley Creek completed by EDI Engineering and Science (EDI 1985A) pursuant to a SPDES Consent Order (Case #7-0383) indicated the presence of polychlorinated biphenyls (PCBs) in the dredged material there. The PCBs, specifically identified as Aroclor 1248, were reported to have originated from material previously used in the plant hydraulic die casting operations.

A subsequent study of the area along Ley Creek was completed by O'Brien & Gere Engineers (OBG) in April 1987. This field investigation identified material containing PCBs within a 1,600 ft. section of the south bank of Ley Creek, downstream from the General Motors (GM) Inland Fisher Guide (IFG) plant outfall. In response to these findings, the New York State Department of Environmental Conservation (NYSDEC) issued a Consent Order requiring GM-Inland Fisher Guide to develop and implement a field investigation program designed to determine the areal distribution and vertical extent of PCBs at the Ley Creek Site, and to identify any potential on-site and off-site releases or migration of PCBs.

The investigation described in this report supplements the previous investigations along the south bank of Ley Creek from the

town of Salina Highway Garage to Townline Road, and includes investigations along the north bank of Ley Creek. The study area is illustrated on Figure 1. The field investigations were performed in accordance with the procedures and protocols outlined on the approved Work Plan dated October, 1987.

.02 Project Purpose and Scope

The purpose of the field investigation was to determine the areal and vertical extent of PCBs at the Ley Creek site, to define potential on-site and/or off-site releases or migration of PCBs, and to complete a risk assessment to evaluate the impacts of any potential receptors.

The following investigative efforts identified in the approved Work Plan were completed to provide data necessary to meet these project objectives:

1. The collection and laboratory analysis of sediment and surface waters samples to determine the concentration, if any, of PCBs and to assess potential transport mechanisms and receptors.
2. The installation of 23 soil borings, including soil sampling and laboratory analysis for PCBs, along the south and north side of Ley Creek to characterize the site geology and chemistry.
3. The installation of six shallow monitoring wells to supplement the existing wells at the site, and provide hydrogeologic and ground water quality data.
4. Ground water elevation monitoring to provide data necessary to evaluate ground water flow direction and hydraulic gradients.